

IN THE CLAIMS:

Please amend the claims as follows:

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30. (Three Times Amended) An oligonucleotide hybridizable under stringent conditions to the nucleic acid molecule which codes on expression for a polypeptide selected from the group consisting of:

a. a leptin receptor selected from the group consisting of OB-Ra (SEQ ID NO:2), OB-Rb (SEQ ID NO:4), OB-Rc (SEQ ID NO:6), OB-Rd (SEQ ID NO:8), and OB-Re (SEQ ID NO:10), or allelic variants thereof;

b. a leptin receptor selected from the group consisting of:

i. N-terminal corresponding to OB-Ra through Lys⁸⁸⁹ and C-terminal corresponding to a C-terminal selected from the group consisting of OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:86), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:87), and OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:88);

ii. N-terminal corresponding to OB-Rb or OB-Rc through Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:89,90) or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:91,92);

iii. N-terminal corresponding to OB-Rd through Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:93), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:94), or OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:95);

iv. N-terminal corresponding to SEQ ID NO:84 from Pro⁶⁶⁴ to Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:96), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:97), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:98), or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:99);

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v. N-terminal corresponding to SEQ ID NO:84 from Met⁷³³ to Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:100), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:101), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:102), or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:103);

vi. N-terminal selected from the group consisting of OB-Ra, OB-Rb, OB-Rd, and SEQ ID NO:84 from Pro⁶⁶⁴ through His⁷⁹⁶, and OB-Re from His⁷⁹⁶ (SEQ ID NO:104,105,106 and 107); and

vii. N-terminal corresponding to SEQ ID NO:84 from Met⁷³³ to His⁷⁹⁶, and OB-Re from His⁷⁹⁶ (SEQ ID NO:108);

c. a leptin receptor wherein

i. the N-terminal sequence is selected from the group consisting of

- (1) amino acid residues 1-889 (SEQ ID NO:109);
- (2) amino acid residues 23-889 (SEQ ID NO:110);
- (3) amino acid residues 28-889 (SEQ ID NO:111);
- (4) amino acid residues 133-889 (SEQ ID NO:112);
- (5) amino acid residues 733-889 (SEQ ID NO:113);
- (6) amino acid residues 1-796 (SEQ ID NO:114);
- (7) amino acid residues 23-796 (SEQ ID NO:115);
- (8) amino acid residues 28-796 (SEQ ID NO:116);
- (9) amino acid residues 28-796 preceded by an N-terminal Asp-Pro dipeptide (SEQ ID NO:117);
- (10) amino acid residues 133-796 (SEQ ID NO:118); and
- (11) amino acid residues 733-796 (SEQ ID NO:119); and

ii. the C-terminal sequence is selected from the group consisting of

- (1) SEQ ID NO:11;

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- (2) SEQ ID NO:12;
- (3) SEQ ID NO:13;
- (4) SEQ ID NO:14; and
- (5) SEQ ID NO:15 after His⁷⁹⁶ (SEQ ID NO:120);

d. a leptin receptor having an amino acid sequence selected from the group consisting of

- i. Asp-Arg-Trp-Gly-Ser-Tyr⁴²⁰ (SEQ ID NO:77)-- > Pro⁶⁴¹ (SEQ ID NO:121,122);
- ii. Asp-Arg-Trp-Gly-Ser-Ser¹¹⁸ (SEQ ID NO:78)-- > Pro⁶⁴¹ (SEQ ID NO:123,124);
- iii. Asp-Arg-Trp-Gly-Ser-Leu¹²³ (SEQ ID NO:79) -- > Val³³¹ (SEQ ID NO:125,126); and

e. a leptin receptor as described in (a)-(d) above in which a cysteine is substituted with an amino acid selected from the group consisting of serine, threonine, and alanine;

wherein the numbering is based on the amino acid sequence of SEQ ID :84.

D3

67. (Amended) A method for diagnosing body weight abnormalities in a mammal comprising detecting splice variants of OB-R in a patient sample comprising contacting a sample suspected of containing splice variants of OB-R with an oligonucleotide hybridizable under stringent conditions to the nucleic acid molecule which codes on expression for a polypeptide selected from the group consisting of:

- a. a leptin receptor selected from the group consisting of OB-Ra (SEQ ID

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NO:2), OB-Rb (SEQ ID NO:4), OB-Rc (SEQ ID NO:6), OB-Rd (SEQ ID NO:8), and OB-Re (SEQ ID NO:10), or allelic variants thereof;

b. a leptin receptor selected from the group consisting of:

i. N-terminal corresponding to OB-Ra through Lys⁸⁸⁹ and C-terminal corresponding to a C-terminal selected from the group consisting of OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:86), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:87), and OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:88);

ii. N-terminal corresponding to OB-Rb or OB-Rc through Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:89,90) or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:91,92);

iii. N-terminal corresponding to OB-Rd through Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:93), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:94), or OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:95);

iv. N-terminal corresponding to SEQ ID NO:84 from Pro⁶⁶⁴ to Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:96), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:97), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:98), or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:99);

v. N-terminal corresponding to SEQ ID NO:84 from Met⁷³³ to Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:100), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:101), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:102), or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:103);

vi. N-terminal selected from the group consisting of OB-Ra, OB-Rb, OB-Rd, and SEQ ID NO:84 from Pro⁶⁶⁴ through His⁷⁹⁶, and OB-Re from His⁷⁹⁶ (SEQ ID NO:104,105,106 and 107); and

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vii. N-terminal corresponding to SEQ ID NO:84 from Met⁷³³ to His⁷⁹⁶, and OB-Re from His⁷⁹⁶ (SEQ ID NO:108);

c. a leptin receptor wherein

i. the N-terminal sequence is selected from the group consisting of

- (1) amino acid residues 1-889 (SEQ ID NO:109);
- (2) amino acid residues 23-889 (SEQ ID NO:110);
- (3) amino acid residues 28-889 (SEQ ID NO:111);
- (4) amino acid residues 133-889 (SEQ ID NO:112);
- (5) amino acid residues 733-889 (SEQ ID NO:113);
- (6) amino acid residues 1-796 (SEQ ID NO:114);
- (7) amino acid residues 23-796 (SEQ ID NO:115);
- (8) amino acid residues 28-796 (SEQ ID NO:116);
- (9) amino acid residues 28-796 preceded by an N-terminal Asp-Pro dipeptide (SEQ ID NO:117);
- (10) amino acid residues 133-796 (SEQ ID NO:118); and
- (11) amino acid residues 733-796 (SEQ ID NO:119); and

ii. the C-terminal sequence is selected from the group consisting of

- (1) SEQ ID NO:11;
- (2) SEQ ID NO:12;
- (3) SEQ ID NO:13;
- (4) SEQ ID NO:14; and
- (5) SEQ ID NO:15 after His⁷⁹⁶ (SEQ ID NO:120);

d. a leptin receptor having an amino acid sequence selected from the group consisting of

i. Asp-Arg-Trp-Gly-Ser-Tyr⁴²⁰ (SEQ ID NO:77)-- > Pro⁶⁴¹ (SEQ ID

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NO:121,122);

ii. Asp-Arg-Trp-Gly-Ser-Ser¹¹⁸ (SEQ ID NO:78)--> Pro⁶⁴¹ (SEQ ID NO:123,124);

iii. Asp-Arg-Trp-Gly-Ser-Leu¹²³ (SEQ ID NO:79) --> Val³³¹ (SEQ ID NO:125,126); and

e. a leptin receptor as described in (a)-(d) above in which a cysteine is substituted with an amino acid selected from the group consisting of serine, threonine, and alanine;

wherein the numbering is based on the amino acid sequence of SEQ ID NO:84.

D4

69. (Amended) A method for measuring the expression of splice variants of OB-R in a patient sample comprising contacting a sample suspected of containing splice variants of OB-R with a oligonucleotide hybridizable under stringent conditions to the nucleic acid molecule which codes on expression for a polypeptide selected from the group consisting of:

a. a leptin receptor selected from the group consisting of OB-Ra (SEQ ID NO:2), OB-Rb (SEQ ID NO:4), OB-Rc (SEQ ID NO:6), OB-Rd (SEQ ID NO:8), and OB-Re (SEQ ID NO:10), or allelic variants thereof;

b. a leptin receptor selected from the group consisting of:

i. N-terminal corresponding to OB-Ra through Lys⁸⁸⁹ and C-terminal corresponding to a C-terminal selected from the group consisting of OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:86), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:87), and OB-Rd after Lys⁸⁸⁹ (SEQ ID

NO:88);

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ii. N-terminal corresponding to OB-Rb or OB-Rc through Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:89,90) or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:91,92);

iii. N-terminal corresponding to OB-Rd through Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:93), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:94), or OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:95);

iv. N-terminal corresponding to SEQ ID NO:84 from Pro⁶⁶⁴ to Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:96), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:97), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:98), or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:99);

v. N-terminal corresponding to SEQ ID NO:84 from Met⁷³³ to Lys⁸⁸⁹, and C-terminal corresponding to OB-Ra after Lys⁸⁸⁹ (SEQ ID NO:100), OB-Rb after Lys⁸⁸⁹ (SEQ ID NO:101), OB-Rc after Lys⁸⁸⁹ (SEQ ID NO:102), or OB-Rd after Lys⁸⁸⁹ (SEQ ID NO:103);

vi. N-terminal selected from the group consisting of OB-Ra, OB-Rb, OB-Rd, and SEQ ID NO:84 from Pro⁶⁶⁴ through His⁷⁹⁶, and OB-Re from His⁷⁹⁶ (SEQ ID NO:104,105,106 and 107); and

vii. N-terminal corresponding to SEQ ID NO:84 from Met⁷³³ to His⁷⁹⁶, and OB-Re from His⁷⁹⁶ (SEQ ID NO:108);

c. a leptin receptor wherein

- i. the N-terminal sequence is selected from the group consisting of
- (1) amino acid residues 1-889 (SEQ ID NO:109);

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- (2) amino acid residues 23-889 (SEQ ID NO:110);
- (3) amino acid residues 28-889 (SEQ ID NO:111);
- (4) amino acid residues 133-889 (SEQ ID NO:112);
- (5) amino acid residues 733-889 (SEQ ID NO:113);
- (6) amino acid residues 1-796 (SEQ ID NO:114);
- (7) amino acid residues 23-796 (SEQ ID NO:115);
- (8) amino acid residues 28-796 (SEQ ID NO:116);
- (9) amino acid residues 28-796 preceded by an N-terminal Asp-Pro dipeptide (SEQ ID NO:117);
- (10) amino acid residues 133-796 (SEQ ID NO:118); and
- (11) amino acid residues 733-796 (SEQ ID NO:119); and

ii. the C-terminal sequence is selected from the group consisting of

- (1) SEQ ID NO:11;
- (2) SEQ ID NO:12;
- (3) SEQ ID NO:13;
- (4) SEQ ID NO:14; and
- (5) SEQ ID NO:15 after His⁷⁹⁶ (SEQ ID NO:120);

d. a leptin receptor having an amino acid sequence selected from the group consisting of

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